CLAIMS

1. In a graft tensioning device for use in joint repair surgery, a suture pulley assembly comprising:

a pulley wheel comprising first and second pulley plates sized and positioned so as to define a pulley space therebetween;

attaching means for rotatably attaching said pulley wheel to an adjustable tension applicator of the graft tensioning device; and

biasing means for biasing at least one of said pulley plates toward the other of said pulley plates.

2. A suture pulley assembly as defined in claim 1, said attachment means comprising a post that passes through a central recess of each pulley plate and that is attached at a first end to the adjustable tension applicator of the graft tensioning device.

3. A suture pulley assembly as defined in claim 2, said post being fixedly attached to the adjustable tension applicator.

4. A suture pulley assembly as defined in claim 2, said post further comprising a flange at a second end opposite said first end and adjacent to one of said pulley plates, said flange overlapping at least a portion of an outer surface of said pulley plate adjacent to said flange.

5. A suture pulley assembly as defined in claim 1, said biasing means comprising a spring.

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6. A suture pulley assembly as defined in claim 5, said spring being positioned between one of said pulley plates and the adjustable tension applicator of the graft tensioning device.

7. A suture pulley assembly as defined in claim 1, said first and second pulley plates spreading apart relative to each other so as to selectively define a larger pulley space in response to tying a half knot within one or more suture strands and then clamp the half knot while a remaining portion of the suture knot is tied.

8. A suture pulley assembly as defined in claim 1, said first and second pulley plates spreading apart relative to each other so as to selectively define a larger pulley space in response inserting a suture having a knot into said pulley space.

9. A graft tensioning device for use in joint repair surgery, comprising:

a suture pulley assembly as defined in claim 1; and

at least one adjustable tension applicator to which said suture pulley assembly is rotatably attached and which is configured to apply a desired tensile load to a looped suture attached to free ends of a looped tissue graft,

said suture pulley assembly equalizing a tensile load applied by said adjustable tension applicator to each side of the looped suture.

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10. A graft tensioning device as defined in claim 9, said graft tensioning device comprising two independently adjustable tension applicators and a separate suture pulley assembly as defined in claim 1 rotatably attached to each of said two independently adjustable tension applicators.

11. In a graft tensioning device for use in joint repair surgery, a suture pulley assembly comprising:

a pulley wheel comprising first and second pulley plates sized and positioned so as to define a pulley space therebetween;

a post attached at a first end to an adjustable tension applicator of the graft tensioning device,

said post passing through a central recess of each of said first and second pulley plates so as to rotatably attach said pulley wheel to the adjustable tension applicator; and

a spring positioned relative to at least one of said first and second pulley plates so as to bias at least one of said pulley plates toward the other of said pulley plates.

12. A suture pulley assembly as defined in claim 11, said first and second pulley plates having inner surfaces that define said pulley space.

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13. A suture pulley assembly as defined in claim 12, at least a portion of said inner surfaces of said first and second pulley plates being angled so that at least a portion of said pulley space has decreasing width from an outer perimeter of said pulley plates toward a center of said pulley wheel.

14. A suture pulley assembly as defined in claim 13, a portion of said pulley space nearest said center of said pulley wheel having a constant width.

15. A suture pulley assembly as defined in claim 11, said first and second pulley plates spreading apart so as to temporarily define a larger pulley space in response to inserting a suture having a knot or half knot into said pulley space.

16. A suture pulley assembly as defined in claim 11, said post being fixedly attached to the adjustable tension applicator.

17. A suture pulley assembly as defined in claim 11, said post further comprising a flange at a second end opposite said first end and adjacent to one of said pulley plates, said flange overlapping at least a portion of an outer surface of said pulley plate adjacent to said flange.

18. A suture pulley assembly as defined in claim 17, said spring being positioned between one of said pulley plates and the adjustable tension applicator of the graft tensioning device.

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19. A suture pulley assembly as defined in claim 17, said spring being positioned between one of said pulley plates and said flange of said post.

20. A suture pulley assembly as defined in claim 11, further comprising a sleeve disposed around at least a portion of said post between said post and an inner edge of each pulley plate defining said central recess.

21. A suture pulley assembly as defined in claim 20, said spring being disposed around a portion of said sleeve.

22. A suture pulley assembly as defined in claim 11, further comprising a washer disposed between said spring and the adjustable tension applicator of the graft tensioning device.

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23. A graft tensioning device for use in joint repair surgery, comprising:

at least one adjustable tension applicator configured to apply a desired tensile load to a looped suture attached to free ends of a looped tissue graft: and

a suture pulley assembly rotatably attached to said adjustable tension applicator so as to equalize a tensile load applied by said adjustable tension applicator to each side of the looped suture, said suture pulley assembly comprising:

a pulley wheel comprising first and second pulley plates sized and positioned so as to define a pulley space therebetween;

a post attached at a first end to an adjustable tension applicator of the graft tensioning device,

said post passing through a central recess of each of said first and second pulley plates so as to rotatably attach said pulley wheel to the adjustable tension applicator; and

a spring positioned relative to at least one of said first and second pulley plates so as to bias at least one of said pulley plates toward the other of said pulley plates.

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